

REMARKS

Claims 1, 3, 5, 7, 9, 11 and 13 stand rejected under § 103 on the basis of Ludwig US '889 and Nookala US '867. Dependent claims 2, 4, 6, 8, 10, 12, 14 and 16 stand rejected under § 103 on the basis of Ludwig, Nookala and Gaur US '004. Applicants traverse these rejections because the cited references do not disclose or suggest the available time generator and mid-transfer command processor of independent claims 1, 5, 9 and 13.

According to claims 1, 5, 9 or 13, an available time generator is configured to generate an available time for receiving another command packet from the host during data transfer. A mid-transfer command processor, when a command packet is received from the host during the available time, is configured to suspend the data transfer to decode the received command for execution of processing and thereafter to resume the data transfer. As described in the specification, page 40, lines 8 to 24 and shown in FIG. 3A, when a break point 88, which is an endpoint of the data packet 86 from the host 11, is detected, an available time 90 for allowing the host 11 to issue the next command is generated by the available time generation unit 64 provided to MPU 34 of Fig. 2. At this time, if a command issuance request 85 is generated on the host 11 side after the transfer of the data packet 86, since the available time 90 which can accept the command issuance is set on the device 10a side at this timing, the next command is transferred to the device 10a by the RegHD packet 94. After this command is processed by receiving and decoding it on the device 10a side, RegHD packet 96 is sent to the host 11, as the response status packet indicating the completion of the command reception.

As described in the specification, page 24, line 18 to page 25, line 5, since an available time to accept a next command is generated at a packet break point during data transfer, more time is needed for data transfer. But, typically, a transfer rate of the interface between a host and a device is almost twice faster than the writing speed to the disk. Therefore, if the available time is generated during data transfer, this time delay will be absorbed by the difference of the speed and will not have an affect on the performance of the device. Contrary to a conventional system, the host can issue a command during data transfer, and the MPU of the host can perform another task during the period it would otherwise have to wait. As a result, throughput of the whole system can be improved.

None of the cited references teach the available time generator and the mid-transfer command processor of claim 1, 5, 9 or 13.

The examiner states that Ludwig (U.S. Patent No. 6,765,889 1) teaches the available time generation unit and the mid-transfer command processing unit of claim 1, 6, 9 and 13, but Ludwig merely teaches that since the transmission of data packets in the opposite direction follows analogous steps, a description of a transmission of data packets from the second data processing device C2 towards the first data processing device C1 is not required and therefore omitted (col. 7, lines 60-65). The third data processing device C3 sends data packets to first communication unit CU1 (col. 13, lines 63-64). Ludwig merely teaches that at time instant t41, during the transmission of the second data packet P2, the interrupt message IM containing interrupt information of the network, concerning a temporary interruption of transmission in the time period from t42 to t43, is received at the first

communication unit CU1 (col. 12, lines 9-23).

Nookala et al. (US 6,323,867 B1) merely discloses FIFOs, a command detection circuit, and a receive task file register.

Gaur et al. (US 2002/014404 A1) merely discloses a suspend processing unit. As described above, Ludwig does not teach the available time generation, unit and the mid-transfer command processing unit of the present invention so that the present invention is not obvious from Ludwig in view of Nookala et al. or Gaur et al. Withdrawal of the outstanding rejections is respectfully requested.


For the foregoing reasons, applicants believe that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

If a Petition under 37 C.F.R. §1.136(a) for an extension of time for response is required to make the attached response timely, it is hereby petitioned under 37 C.F.R. §1.136(a) for an extension of time for response in the above-identified application for the period required to make the attached response timely.

The Commissioner is hereby authorized to charge fees which may be required to this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 07-2069.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By 

Patrick G. Burns
Registration No. 29,367

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300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
(312) 360-0080

Customer No. 24978